or satiation) is irrelevant to the activity it may elicit —it covers a wide range of situations. Responsiveness, attention, approval, affection, submissiveness, and money are classified as generalized reinforcers.[60] In terms of intensity, the primary reinforcer undoubtedly has the most impact on the organism, followed by generalized reinforcers and, lastly, conditioned reinforcers.

Learning and Discrimination

Two more organismic and environmental factors are of utmost relevance to learning: the discriminatory abilities of the organism and the actual or perceived schedules of reinforcement provided by the environment. At this point, we may begin to make broader distinctions between basic and social learning. All learning is dependent upon the discriminatory capacities of the organism. The ability of the organism to make enduring adjustments to environmental change defines its chances for survival; if it can reshape its behavior, probabilities for survival are high; if not, they are almost nil. There is a good deal of truth in the maxim that "a tree unable to bend with the wind will eventually be broken or uprooted." According to the laws of learning, the higher the frequency of reinforcement, the greater the probability of emission of the reinforced activity on later occasions when similarly motived. Oddly enough, the normal operation of this law produces a high probability of extinction of activities, thus improving the possibility of reshaping (new learning) behavior. Even though the component reinforced gains in strength due to the frequency of reinforcement, it becomes progressively more vulnerable to extinction. The reason is that it becomes easier and easier for the organism to perceive change in learning conditions, and specifically, to differentiate between the conditions of reinforcement and the conditions of extinction.[61] The increased frequency of reinforcement enables the organism to determine with increasing accuracy precisely what activity produced reinforcement. The moment a particular activity ceases to be reinforced, the organism quickly discovers the source of nonreinforcement or punishment, and alters its behavior accordingly. The long process of subtraction implicit in basic learning can be circumvented. However, if the organism's capacity to discriminate is limited, differentiation has a ceiling which cannot be exceeded. The lower the discrimination, the lower the capacity to make learned adjustments, or to relearn. Thus, discriminatory capacity may have important organismic roots: it may be (a) limited, as is the case with lower animals (lower than man), (b) underdeveloped, as is the case of infants, children and uneducated people in general, (c) impaired, as is the case with the mentally ill or retarded.

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[60] Skinner, Science and Human Behavior, pp. 76-80.

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[61] David C. McClelland, Personality (New York: William Sloane Associates, 1951), pp. 448-450.

The second source of reduced discriminatory capacity may be the reinforcement schedules presented to the organism by the environment. Let us define

reinforcement schedule df the patterned arrangement (conscious or accidental) of stimuli elicited by the organism from the environment as a consequence of the emission of activity.

There are two general types of reinforcement schedule: consistent, in which each and every activity of the organism is reinforced or deterred uniformly; and intermittent, in which only some activity is reinforced or deterred. Consistent schedules are rare empirically, although they offer the greatest opportunity for improving discrimination and are therefore the best source of adjustive learning. Intermittent schedules are of two kinds: fixed and variable. A fixed intermittent schedule is one in which reinforcement or deterrence occur at fixed, but unequal intervals; a variable intermittent schedule is one in which reinforcement and deterrence occur at random, variable intervals. Randomness and variability have two specific results that affect susceptibility to extinction: (a) reduction of predictability, which, in turn, raises the probability of immediate payoff, and (b) reduction of discrimination, making it harder and harder for the organism to link activities to stimuli conceptually. In general, the higher the probability of immediate payoff, the lower the probability of discontinuing activity even though payoffs do not occur.[62] In effect, if the probability that every new activity will produce a payoff increases, so do the incentives to emit activities. Thus, virtually any operant or respondent learned under conditions of reduced organismic or environmental discrimination and random and variable reinforcement schedules possesses an almost ironclad resistance to extinction. The greater the resistance to extinction, the lower the capacity to relearn; and by inference, the lower the capacity to relearn, the lower the probability of survival (or adjustment).

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[62] Skinner, Science and Human Behavior, pp. 94-106.

Basically, discrimination is an intellectual process of analysis and synthesis. First, the environment is broken down or taken apart analytically to discover the connections between events. The learning-relearning process requires on the part of the organism the capacity to differentiate between values and nonvalues, positive and negative sensations, differential quantities and qualities, the conditions of learning and extinction, subtle changes in the environment, and a host of minor nuances. After analysis has been completed and the organism is satisfied that it has solved the problem, the environment is put back together, or synthesized into a new image. The environment prior to analysis should look somewhat different after synthesis. Discrimination is probably a functional outgrowth of the disposition on the part of all organisms to generalize; people, like pigeons and rats, tend to transfer the experience gained in one setting to other settings which appear to be similar. The catch is that you can seldom depend on appearances, especially in social interaction.[63] Probabilities are excellent that perceived similarity is appearance only, especially if the change and evolution are pervasive. The best recommendation for generalization is that it is efficient, if nothing has changed since the last setting. Because change is so common, generalization turns out to have a long run inefficiency. In effect, because risk and uncertainty are the rule, the organism is likely to try generalizing first; if that doesn't work, it is then augmented by discrimination.

The capacity to discriminate varies from species to species, and also within species. Men can discriminate better than chimpanzees, and chimpanzees better than mice; adults can discriminate better than adolescents, adolescents better than children, and children better than infants. Between species it is intimately affected by the capacity to think, which, in turn, seems to be related to cortical size, specificity and area of the brain. In general, the larger the size, the greater the specificity (i.e., the attachment of specific functions to specific areas of the brain) and area, the greater the capacity for thought; and, inferentially, the greater the capacity for thought, the greater the discriminatory potential. Imprinting in the pure, ecological sense is learning by organisms with the most limited discriminatory potential; everything below pure imprinting is a function of instinct and releasing mechanisms.[64] Slightly more discriminatory potential produces a weak form of imprinting; still more creates the ability to learn; at the top of the scale, one finds the capacity to learn and unlearn with great speed and accuracy. Within species, there also exists a discrimination continuum which places a human child of two on substantially the same level as a full grown chimpanzee. Four complementary continua are suggested by the analysis:

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[63] Erving Goffman, The Presentation of Self in Everyday Life (Garden City, New York: Anchor, 1959), Chapter I (Performances).

Figure 2.10

1. discriminatory capacity between species

fowl	some mammals	primates	man
low		medium	high

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[64] Roger Brown, Social Psychology (New York: Free Press, 1965), pp. 22-32, for a coherent presentation of the releaser theory.

Figure 2.10 (Continued)

2. discriminatory capacity in man

infancy	childhood	adulthood
low	medium	high

3. cortical specificity, size and area

fowl	lower mammals	primates	man
small and general		medium	large and specific

4. human development and discriminatory capacity

emotional needs		personality structure	personality content
(infancy)	(childhood)	(adolescence)	(adulthood)
low		medium	high

At any level, learning depends almost exclusively on the accuracy of discrimination. In the human situation, it is decisive because the human social environment is a thousandfold more complex and variegated than that of any other species. In order to discriminate, the organism must possess tools and the ability to use them. For man, the

Tools are symbols and the measurement of time, and the ability to use them is intelligence. Thus, discrimination, and by inference learning, depend upon man's ability to symbolize, to manufacture symbols from raw sense data, to measure time, to employ both symbols and time creatively in analysis and synthesis, and to integrate the perceptual products of such activity into successively more desirable (in terms of adaptation and adjustment) levels of learning. The defining characteristic of intelligence is rapid, successful management of reality. According to Jean Piaget, intelligence flows through a sequence of four, interrelated stages that are developmentally determined (that is, one stage must be mastered before the next can be undertaken): the sensory-motor stage from birth to 18 months in which there is an aggregation and integration of sense data into images; the preoperational stage from 18 months to 7 years in which simple images are assigned symbols, symbols are aggregated into static, single dimensional models of reality; the operational stage from 7 to 11 years in which rudimentary forms of analysis can be performed according to the simple rules of set theory and models are expanded to meet a burgeoning reality; and finally, the formally operation stage from 11 years and beyond in which a kind of sophisticated analysis and discovery occurs according to rules resembling the scientific method--the beginning of truly scientific hypothesis testing at a personal level.[65] Infants in the sensory-motor stage lack symbols and appear to have no real sense of time; children in the preoperational stage must work with limited symbols, almost no rules of inference, discontinuous perceptions of time, and essentially static representations of a dynamic reality. Because they are, in a general sense, unable to identify the relevant constituents of the environment and link them meaningfully to their own behavior, learning in these two stages becomes intensely resistant to extinction. In effect, the underdeveloped discriminatory capacities of infants and children imposes a perceptual randomness and vaiability upon what might intentionally be a consistent reinforcement schedule. Thus, that which is learned earliest persists longest because it has been acquired under conditions of limited discrimination.

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[65] Bärbel Inhelder and Jean Piaget, The Growth of Logical Thinking (New York: Basic Books, 1958).

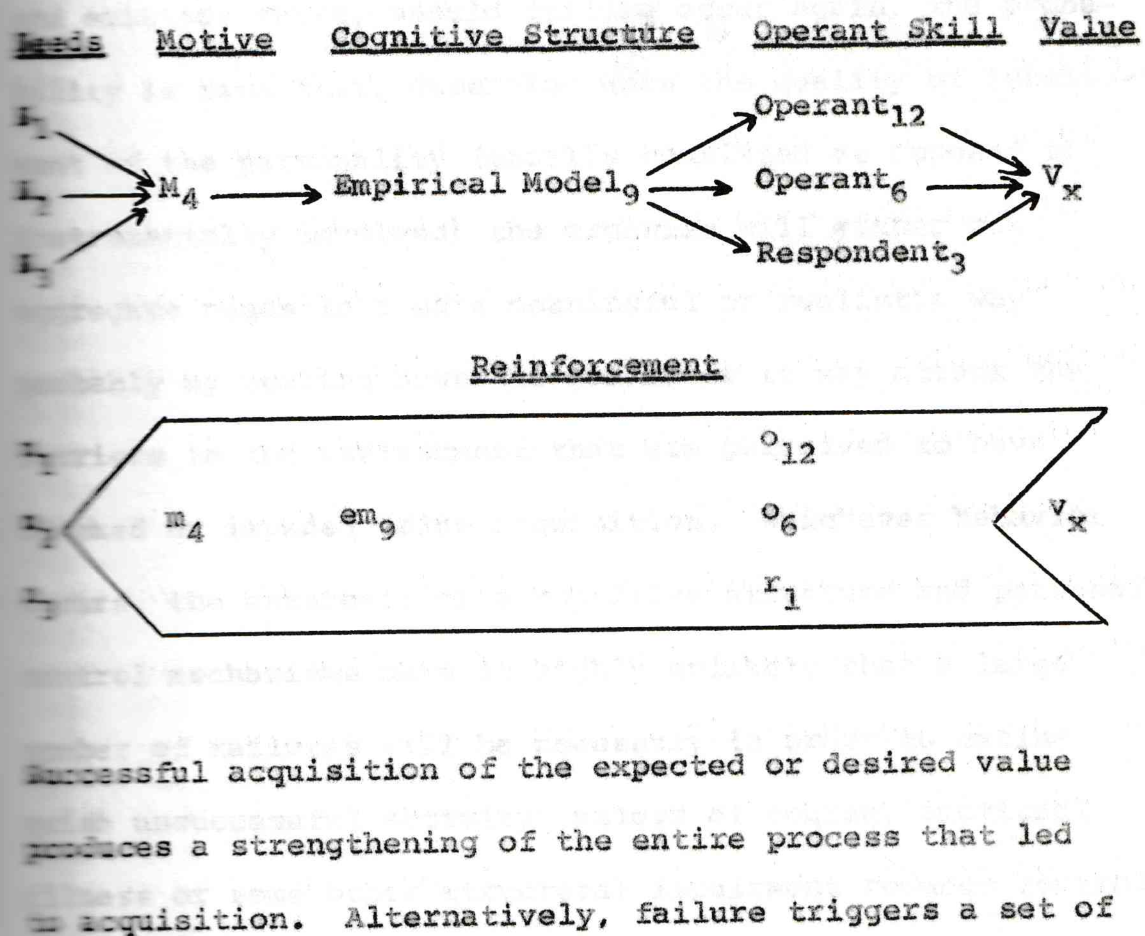
Of the many elements learned during the sensory-motor and preoperational stages, the most resistant to extinction is the universal structural specialization of the components of the personality. In later years, the personality may be expanded or enlarged, it may develop greater capacities, its content may become more complex and variegated, but its essential structure, and the original segmentation of functions remain intact. The personality begins with a powerful advantage in its struggle with the environment: it has a stable, elemental, unchangeable, underlying structure and organization which can be filled out and changed in a variety of ways to meet the changing demands of concrete situations. At all times, it remains potentially formidable and viable.

Social Learning

The essential difference between basic and social learning rests on the involuntary and totally neurophysiological character of the former and the controllable, arbitrary, perceptual nature of the latter. In the basic process, stimuli are received by sense receptors, reinforcing or deterring contiguous activity. Operants and respondents are limited to a small set of environmental values and the range of activity is correspondingly small and relatively simple. Complex behavior is built up through a laborious process of chaining. Social learning, in contrast, is an innately more complex activity involving the use of symbols, the integration and coordination of the components of the personality, and highly selective, voluntary acts of control over both the organism itself and the multiple elements of the environment. Specifically, it involves activity based upon plans and decisions. Many, if not most of the prolonged, and from the human point of view costly processes of basic learning can be circumvented, especially the incremental strengthening and weakening of operants and respondents, and the process of chaining to build complex activity. When an organism discovers that an operant, after several trials, fails to acquire the desired results, it can drop the operant arbitrarily in order to try another manufactured by creative judgment. The heavy reliance of man on imitation often allows an infant or child to perform complex activity perfectly on the first try. In effect, learning is augmented by a vicarious process of reality testing in which all elements of an activity can be synthesized and coordinated in the mind prior to actual performance.

In terms of overall process, needs are aggregated by a motive; the motive is fed into the cognitive structure where a model of empirical reality selects the most efficient lines of strategy available conceptually; the organism is then oriented perceptually toward the environment in search of values; at this point, operants and respondents are selected and used, If the value is acquired, the entire process is reinforced:

Figure 2.11



Successful acquisition of the expected or desired value produces a strengthening of the entire process that led to acquisition. Alternatively, failure triggers a set of internal readjustments: first, the operant emitted will probably be tried again on the basis of the possibility that it was emitted incorrectly; if it fails again, the deterrence will be sufficient to initiate a model testing process, in which the organism attempts to evaluate the correctness of the information upon which the emission of the operant was based; second, if error is detected, the model will be tested and altered to fit the situation more closely, and a new operant will be selected or developed and emitted; third, should failure occur again, the probability is high that, depending upon the quality of involvement of the personality (morally committed as opposed to instrumentally involved) the organism will either re-aggregate needs in a more meaningful or realistic way, probably by scaling down its goals, or it may attack the barriers in the environment that are perceived to have blocked or impeded value acquisition. Whichever behavior occurs, the existence of a cognitive structure and personal control mechanisms make it highly unlikely that a large number of failures will be necessary in order to extinguish unsuccessful activity, unless of course, emotional illness or some other structural impairment reduces control or reality testing capacity.

Social learning involves conceptual activity, the ability to test behavior vicariously without risking encounters with reality (simulation), and a process of conscious control, coordination and integration of the elements of the personality. This is not to suggest that the components of the personality are acquired independently of the basic learning process, for human beings undergo the longest relative period of socialization and nurturance of any living organisms. It merely points out that, unlike the basic learning process, social learning involves a high degree of cognitive control on the part of the learner. One of the most significant reasons for continuity in the human personality, aside from the limited discriminatory capacities of infants and children, is the ability of a developing organism to cognitively manage environmental stimuli: definitions of rewards and punishment, the meanings of symbols, the ways in which symbols are connected in sentences that describe reality, the field of information exposed to, all can be controlled and managed by the organism for its own benefit. The result is a selective responsiveness to change as well as a progressively expanding set of opportunities for learning without direct exposure to the relevant experience. When an organism concludes that learning is worthwhile, the content of the personality can be expanded with great rapidity. The capacity for cognitive control, however, makes the decision about what to learn and when an exclusive property of the organism.

CHAPTER III

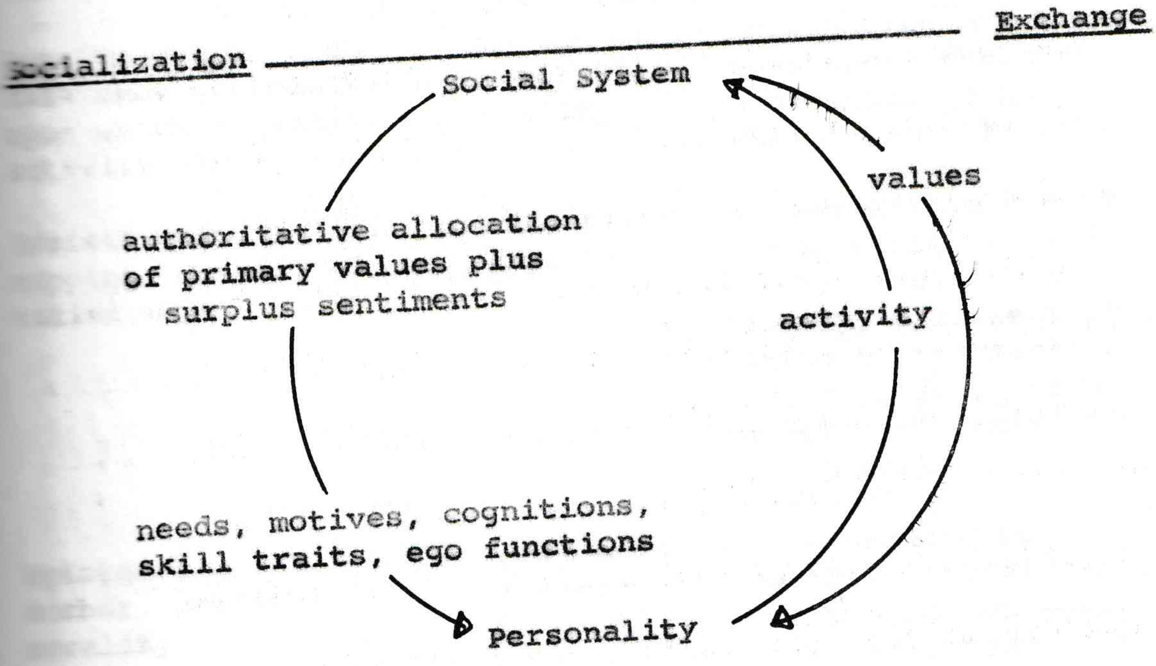
A CYBERNETIC MODEL OF PERSONALITY

The Conjunction of Personal and Social Functions

In the most basic sense possible, the human personality has become the critical factor in the survival, health and propagation of society. The needs of the organism are the only sources of incentive for the performance of social roles; its motives are essential for linking the right needs to the right roles; its models of reality are important elements in the development of the social maps on which social functions depend; its authority figures provide a vital link between the energies of the organism and the energy needs of society, the maintenance of order, the efficient operation of hierarchical organization, and an efficient, stable supply of compliance; its primitive beliefs are important sources of internalized social control, and of social solidarity based upon moral consensus; its skill traits are vital instruments of concrete social performance; its ego as the basis for a stratification system based on success. It is a truism that without organisms that possess personalities, society as we know it would not exist. Yet societies, animal societies, do exist, in which organisms get along without personalities, operating instead on the basis of a hereditary instinct which is continually reinforced by the dangers present in every environment. But, society as we know it, with its complex structures, functions, roles, activities, coordination, integration, management, does not appear to rest on instinct. In fact, most of the evidence supports the view that man's reliance on culture as a means of technological adaptation has led to the extinction of instincts. Thus, the particular state of a human social system depends to an exaggerated extent upon the existence of a particular, learned personality structure.

The relationship between society and personality is symmetrical, in the sense that, first, the personality supplies activities without which particular levels of social integration or development could not be sustained; second, the social system sees to it that, in a general way, the appropriate personalities are available for social use by shaping them through a system of socialization and, third, once shaped, society elicits the requisite activities by supplying values to meet the personality's needs. Every component of the personality thus performs a value acquisition function for the organism, and at the same time, a vital activity for the social system. The symmetrical interdependence of society and personality can be diagramed as follows:

Figure 3.1


Socialization
Exchange
Social System
values
authoritative allocation of primary values plus surplus sentiments
activity
needs, motives, cognitions, skill traits, ego functions
Personality

The dual functions of the components of the personality for the organism and society can be noted briefly as follows:

Figure 3.2

Personal Functions	Components	Social Functions
Activate and energize organism to acquire values required for survival, health and propagation.	needs	source of energy and activity for the performance of social roles.
Aggregates needs to bring them into line with aggregation of values.	motives	Links needs to the values aggregated by social roles.
Development of accurate maps of reality upon which acquisition activity can be based.	models of empirical reality	Aggregation of information about reality upon which to base social activity.
Assistance with mapping, authoritative maps.	authority figures	Authoritative use of human energy to increase social efficiency, efficient operation of hierarchical organizations, efficient compliance in group tasks.
Epistemological anchor, personal morality	primitive beliefs	Internalized social control, social solidarity based on moral consensus, bases for adjudicating conflict.
Personal instruments of value acquisition.	skill traits	Instruments for the performance of social functions.
Personality integration, efficient coordination of acquisition activity, control, and a source of cognitive discrimination.	ego	Maintenance of a dominance and stratification system based on the efficiency of success with valued tasks.

In order to get a firmer intellectual grasp on the relationship between society and personality, it will be useful to divide the socialization and exchange processes analytically, and to examine each independently of the other. After the divergent strands have been sifted sufficiently to yield as much information about the personality as possible, they will be reintegrated, hopefully in a way that will generate some new insights about the relationship between personality and society. The central focus of this chapter is the shaping of each component, and elaboration of the way in which each is subsequently integrated into a unified, smoothly functioning personality mechanism. Before going on, this is a convenient place to restate some words of caution about the process of scientific inquiry. The mechanical model of personality considered here is only an approximation of reality--it is, so to speak, an intellectual convenience, the purpose of which is to impose some meaning on the obscure elements of human activity that arise from within the organism. The model is not "real" in any empirical sense. It is merely a way of looking at the personality, and, as anyone familiar with personality theory will tell you, it is far from being the only way. What recommends it to me, and I hope will recommend it to others, is that it attempts to integrate several existing, but noncomplimentary approaches to the study of personality, while at the same time linking the study of personality to other psychological formulations of human behavior, especially learning theory. Because the development of needs and motives have already been examined, we will begin the actual work of this section with cognition.

Cognitive Structure and Function

Near the end of their extensive, though selective summary of the confirmed research findings of the behavioral sciences, Bernard Berelson and Gary Steiner identify human cognition as the single most significant source of variation in human activity:

> For the truth is, apparently, that no matter how successful man becomes in dealing with his problems, he still finds it hard to live in the real world, undiluted: to see what one really is, to hear what others really think of one, to face the conflicts and threats really present, or, for that matter, the bare human feelings. Animals adjust to their environment more or less on its terms; man maneuvers his world to suit himself, within far broader limits.
>
> What makes him able to do this, largely, is his symbolic capacity and the language that goes with it. Not only can things be named, manipulated, studied, preserved, and communicated all without any physical contact; but things can be called by other than their real names, and names can be devised to suit occasions, thus adding innumerable (and inexpensive) opportunities for gratification as well as control. Deference, respect, affection, virtue, justice, status, honor--these and

other desirable qualities are bestowed largely through words, and hence are far more available than material objects.[1]

As we have already discovered, cognition makes a shambles of the basic learning process when extrapolated to explain social learning. We will see later that the effects of human perception on how the world is organized and seen has profound effects on the laws of human exchange. The unconditional nature of any law of human behavior is virtually destroyed with the discovery that stimulus patterns from the environment can be selectively controlled and managed. Some stimuli are accepted, others rejected, and still others distorted to fit personal preconceptions, needs and interests. Thus, perceptual control (and content) must be considered a major factor in accounting for the seemingly random and often mysterious outcomes of human activity.

Cognitive structure is an ingenuous mechanism evolved to efficiently manage the manifest conflict between the need for stability and the need to know. The conflict emerges from the following line of argument:

1) The profitable acquisition of values is impossible in the absence of reliable knowledge of reality; the more

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[1] Berelson and Steiner, p. 664.

reliable the knowledge of the interaction setting, the lower the error in the emission of operants and respondents, and concomitantly, the greater the success and profit in the acquisition of values;

2) thus, men have a need to know which is met by testing reality; but because the tools of inquiry are always inadequate and because exchange normally takes place in settings that change, the utility of existing knowledge deteriorates with time;

3) the inadequacy of knowledge to completely represent reality creates a need for stability (reinforced by the biological requirement of homeostasis) which is met by imposing a cognitive order on the residual, and uninterpreted events of reality.

In effect, the need for stability is manifest in the cognitive drive for completeness:[2] every known event must be integrated into the cognitive system. Because the inherent economy of model-building requires the exclusion of superfluous elements, these residuals must be made meaningful through another kind of cognitive activity: primitive beliefs. Together, the peripheral belief system (containing models of reality) and the primitive belief system (containing primitive beliefs) constitute a complete cognitive system.

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[2] Gordon Allport and James Faden, "The Psychology of Newspapers: Five Tentative Laws," Public Opinion Quarterly, IV (1940), 687-703.

The human cognitive structure has evolved two functionally specific subsystems to handle the problems posed by the existence of these two needs. The first, and frequently the most important, is a peripheral system containing learned models of empirical reality which function to facilitate value acquisition by providing the organism with potentially accurate and reliable knowledge of reality. The models are complex representations of real processes and of the dynamic interactions between real objects. The process of building peripheral models begins with the aggregation of sense data into coherent, organized, and meaningful images; in turn, the images are identified by the assignment of linguistic symbols.[3] The symbols are then linked to represent the dynamic processes that go on in the real world. As the simplest relations are mastered and used, new dimensions are added and integrated, deriving more global coverage. With time and experience, the universal or generalized character of the early statements are given conditional modification. As a rule, the level of complexity of the peripheral system is proportional to the complexity of the environment covered by the system.

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[3] Berelson and Steiner, p. 99. For an elaboration of the neurological basis of perception, see D. O. Hebb, _The Organization of Behavior_ (New York: John Wiley and Sons, 1945), chaps. 4, 5, and 6.

Once the models have been established on an enduring basis, that is to say, after it has been demonstrated that they work in the predicted way in concrete situations, they become fairly resistant to change, even though the primary perceptual orientation of the peripheral system is always toward openness. The reason for this delicate balance between change and the resistance to change is the basically conservative nature of the organism. It will be recalled from our discussion of learning and exchange that the first strategy when the situation appears to be similar and the organism is similarly motivated, is to generalize, or to try what has worked before. In practice, the range of reality any person needs to test may be so small and so stable that there is often little need for further perceptual adjustment. Even where change is required by the situation, the organism is still reluctant to alter a model that has worked well in the past. Another source of resistance to change can be found in the fact that peripheral beliefs often come to serve functions completely unrelated to the testing of reality. For example, a white Southern American racial supremacist might defend his belief that the Negro is an anthropoid because the maintenance of the belief is linked directly to the capacity of his ego to integrate his personality. In effect, the model or some part of it assumes some special psychodynamic significance for the organism, and is deliberately and jealously guarded against the contaminating effects of reality. Studies in mass communication support the hypothesis that beliefs are resistant to change: (a) for the most part, information tends to have a reinforcing effect on existing beliefs, (b) when change does occur, it is normally minor, involving some small adjustment in the relationship between the elements of a model, and (c) once change occurs, it appears to immunize the organism against further change in the immediate future.[4] When information has been received, but no change occurs, any one of three conditions may be operating: (a) no change is necessary, (b) the belief expected to change performs functions unrelated to reality testing, or (c) the natural reluctance of the organism to give up something that works is showing through. On the other hand, when change does result, it may mean that (a) an existing belief has proved inadequate for the task of value acquisition, or (b) the organism is merely filling out its maps of reality by enlarging the content.

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[4] *Ibid.*, pp. 529-541. Also Joseph T. Klapper, *The Effects of Mass Communications* (New York: Free Press, 1963).

The second system of significance contains learned, but relatively unamendable primitive beliefs which initially grow out of the need for cognitive completeness: the single most important impetus behind the development of the system is the need to meaningfully interpret the residual, and mysterious events of perception. However, they soon expand from this relatively passive role (under the influence of social needs) to include the preservation of the internal integrity of the organism against persistent situational demands for unprofitable change, and the development of an ethical or moral perspective designed to keep the organism well within the boundaries of goodness, truth and beauty set by society. In terms of elementary content (prior to the moment beliefs are invested with affective charges) primitive beliefs take the form of simple epistemological statements about the nature of man, government, the physical universe, time, change, knowledge, the self, and so on, or whatever happens at the moment to be in the psychological field but which remains uninterpreted or unexplained. The grammatical structure of the primitive belief system consists primarily of metaphysical declaratives in the form of the analytic *apriori*. The simple, abstract, generalized character of the system makes it the obvious repository of morality.

Primitive beliefs seldom change, although they may be articulated into elegant semi-autonomous cognitive systems (myths, doctrines, ideologies, etc.).[5] The general resistance of primitive beliefs to extinction stems from two independent sources: (a) the conditions of learning--they are learned under conditions of primacy[6] and limited discrimination (lack of symbolic control and time discrimination), and (b) the functions they perform--they provide the organism with the stability of a completely interpreted reality as well as linking the organism neatly to the moral demands of society. The basic problem of the peripheral system is to test models of reality, that is to say, to evolve a knowledge of reality based upon a procedure in which truth value is assigned to the model if the model adequately interprets or predicts the data. But the central problem of the primitive belief system is the reverse: to maintain the beliefs by eliciting reinforcing data. Thus, while the basic disposition of the peripheral system is toward openness, the primitive system is closed. The centrality of the system to the personality is a powerful deterrent to change.

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[5] This term was borrowed from Vincent Ostrom, "Culture, Science, and Politics," Gore and Dyson, *op. cit.*, pp. 85-92.

[6] The principle of primacy holds that the first experiences of an organism are the most salient.

In general, this view represents an attempted synthesis of two competing schools of cognitive theory: (a) the Gestaltist or dissonance view that all beliefs are systematically compared with reality at every level in order to bring them into harmony with situational demands, and (b) the psychoanalytic view that reality is tested only "insofar as necessary to satisfy id and superego strivings, or to sublimate such strivings."[7] Neither theory comes close to fitting the facts of cognitive behavior, namely that while most people change some of their beliefs, other beliefs seem to be highly resistant to change, so much so that they may persist an entire lifetime unchanged. In the case of the dissonance school, no attempt has been made to distinguish qualitatively between types and functions of cognitive artifacts (attitudes, opinions and beliefs): all are assumed to be equal on the functional dimension. In contrast, our theory makes such distinctions, and links them directly to the probability of change: the more peripheral, the higher the probability of change and the more central, the lower the probability. However, the dissonance theorists do distinguish between discrepancy, importance and intensity of beliefs: change is most likely to occur in those beliefs that are highly discrepant from those held by a "positively evaluated source," are unimportant and lack intensity.[8] According to our theory, peripheral beliefs change precisely because they are important, even critical in the acquisition of values. The dissonance school has made a fetish of the proposition that men constantly seek cognitive equilibrium by attempting to bring their beliefs into harmony with the beliefs of their peers. In experiments with dissonance, subjects have shown a remarkable disposition to adopt the beliefs of the group. Adjustment of verbal behavior to fit situational demands has been accepted as evidence of cognitive change. No counterweight has been given to the very good possibility that people can alter their verbal behavior without altering the basic models upon which they base value acquisition activity. In fact, an intelligent organism would undoubtedly discover that conforming verbal behavior was the best all-around stratagem that a maximizing organism could possibly follow. If dissonance theory were correct, then beliefs would exhibit little consistency over time, and human belief systems would be infinitely malleable. The fact that they are not has forced the dissonance theorists to invent the "weakest link" hypothesis (i.e., beliefs that are easiest to change--that is, those most discrepant, least important and intense--are most likely to change). On the other hand, if the psychoanalytical theory were accurate, beliefs would never change, and, given our previous analysis, behavior would be characterized by an almost destructive rate of behavioral error. In effect, the organism would not be responsive to situational demands; responses would be set and fossilized, which, incidentally, implies a total incapacity to learn. In synthesizing the two approaches, Rokeach holds that a "person will be open to information *insofar as possible* and will reject it, screen it out, or alter it *insofar as necessary*."[9] In order to strengthen our own conceptualization, we may modify Rokeach's language slightly, and assert that, at the peripheral level, a person will be open to change insofar as necessary to meet situational demands, and, at the primitive level, will reject it, screen it out, or distort it insofar as possible in order to reinforce primitive beliefs.

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[7] Milton Rokeach, The Open and Closed Mind (New York: Basic Books, 1960), p. 65. Most of the terminology of this section has been borrowed from Rokeach.

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[8] Robert Lane and David Sears, Public Opinion (Englewood Cliffs, New Jersey: Prentice-Hall, 1964), pp. 44-47.

The mechanism which controls the input of information is a perceptual aperture whose scope, direction and permeability can be controlled and manipulated to perform the tasks of reality testing and primitive belief reinforcement. Four specific kinds of selective controls are employed to get information or render it useable: selective exposure, perception, distortion and retention.[10] The function of selective exposure is to orient the organism to those bodies of data that will most efficiently serve both reality testing and reinforcement needs simultaneously. If we accept the implications of learning theory that nothing persists without reinforcement, we are forced to the conclusion that primitive beliefs require reinforcement as a condition to survival. Peripheral beliefs gain reinforcement when they successfully aid value acquisition; primitive beliefs gain reinforcement by interpreting the residual unknowns of reality. But reinforcement comes in a roundabout way, by eliciting data that conform to the interpretations of the beliefs, after the initial interpretation has been made. Primitive beliefs also assume such a central significance to the stability and social affiliation of the organism that information cannot be handled on the same basis as the peripheral system. Initially, the primitive system performs the function of cognitive completeness, but later it acquires other functions that do not allow the organism to take the risks of falsification implicit in reality testing. There is a good deal of evidence that prolonged deprivation of information produces the conditions for brain-washing, but that the organism always resists, often to the point of manufacturing reinforcing information through hallucinations and fantasies.[11] Because primitive beliefs lack a universal content, the scarce distribution of information should make it difficult to find reinforcing information. The most efficient strategy is to find information that is both reinforcing and functional for testing reality. Where this particular aggregation of information cannot be found, the organism is forced to stretch its information in whatever ways are required. It is from precisely this set of conditions that the other selective perceptual controls emerge. Selective perception allows the organism to refine its focus of attention at will, and to allocate perceptual energy to whatever tasks may be required for the moment. Selective distortion allows the reshaping of the meaning of information where selective exposure and perception fail to narrow information sufficiently to meet the criteria of reinforcement. Selective retention allows the intensive, vicarious use of the most reinforcing of the information consumed. Memory provides two important services: recall or retrieval of information relevant to the acquisition of values and intensive use of information that is highly reinforcing. Thus, memory is an important technique for preserving or conserving information of special importance for future use. For those who can retain efficiently and have relatively differentiated belief systems, memory often turns out to be vital armament against stimulus deprivation--it seems to provide excellent immunization against attempted brainwashing.

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[9] Rokeach, p. 65. Italics in original.

[10] The concept "distortion" was borrowed from Rokeach; "exposure," "perception" and "retention" are consensually accepted terms in communications research. Klapper, pp. 19-25.

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[11] For a review of the literature on the effects of reduced environmental stimulation, see Philip E. Kubzansky, "The Effects of Reduced Environmental Stimulation on Human Behavior: A Review," *The Manipulation of Human Behavior*, ed. A. Bidderman and H. Zimmer (New York: John Wiley and Sons, 1961), pp. 51-95.

How open an organism is to information and which selective controls are employed is determined by the degree of psychodynamic integration. Emotional conflict has the effect of closing the perceptual aperture, reducing the exposure of the organism to reality testing information. The notion that the openness and control of the perceptual aperture can be affected by psychodynamic adjustment is somewhat at variance with Rokeach's formulation of structural dogmatism. According to Rokeach, failure to expose to certain important kinds of information is a function of the general structural properties of a belief system. Some belief systems are structurally more open to information than others. In order to introduce a dynamic quality, and to include the very good possibility that a single person may be open perceptually at one time but closed at another, we assume that closure is a function of emotional adjustment: the higher the emotional conflict, the less open the belief system at the peripheral level. The mechanism through which emotional adjustment affects the perceptual aperture is the distribution of perceptual energy allocated to the two cognitive tasks. In a "normal" human being, the distribution should alternate, flowing back and forth from system to system depending upon the momentary cognitive needs of the organism, or in response to its emotional "mood." Most severe mental illness produces a more or less permanent redistribution of perceptual energy in favor of the primitive beliefs and away from reality interests. This can be inferred from the high rate of behavioral error that plagues mentally disturbed persons, indicating varying degrees of extreme perceptual closure. The process reaches its apogee in the catatonic schizophrenic. In our scheme, behavioral error is evidence of perceptual withdrawal; given a stable reservoir of perceptual energy, this can only mean that the energy is being used in another way, and the only other way is reinforcement. In the case of permanent impairment, it is probably the case that the total reservoir is depleted with lack of use. Depletion might occur in the following sequence: first, closure in response to emotional conflict reduces the frequency and the accuracy of model testing. In the process, the organism is not able to test reality and this leads to an increase in errant behavior. Second, errant behavior produces rejecting response from other organisms, supported by positive demands for normative adjustment, which cannot be affected given the extent of the perceptual closure. In effect, social norms become less and less relevant to the organism. The withdrawal of social support increases the organism's need for stability, and this makes the primitive system even more salient than before, requiring ever increasing amounts of perceptual energy. Third, the organism adjusts to the further withdrawal of perceptual energy from the peripheral system by narrowing the range of its interaction to more manageable proportions. Eventually, a surplus of energy begins to accumulate, a surplus that diminishes in amount as demand falls. This may be part of the reason for the typically slow recovery rate of most mental patients: the accretion of perceptual energy may be a long process intimately related to the prolonged period of socialization characteristic of human beings. If the reservoir is depleted over a long period of time, it may take an equally long period of time to replenish it.

There exists a third cognitive sybsystem containing authority figures[12] (opinion leaders, prestigious communicators and prestigious media) upon whom (or which) the organism depends for (a) supply of reliable, pre-screened data which can be used to test models that cannot be referred directly to personal experience, (b) interpretation of reality against which models already tested can be double-checked, (c) a supply of highly narrow and premium warranted information that can be employed to reinforce primitive beliefs, (d) authoritative criteria for choosing between competing knowledge claims or clarification of ambiguous data, and (e) management of the huge volume of informational stimuli to which the organism is subjected daily. Basically, the function of the authority figure is to assist the peripheral and primitive sybsystems in the efficient performance of their functions, given a particular kind of cognitive content in a particular kind of informational environment. The organism normally has one problem: how to test reality and reinforce primitive beliefs with a particular content in an informational environment saturated by stimuli. One way of narrowing the range of information to more manageable and appropriate proportions is to allow other people to specialize in such activity. In effect, the external authority figure narrows information according to the general content requirements of particular sets of organisms. Individual organisms then internalize the authority figure and begin to use it as a source of information. If the information range is still too broad, the selective controls of the perceptual aperture can be employed to narrow it still further.

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[12] Rokeach, pp. 42-46.

Authority figures, of course, normally get something for engaging in narrowing activity--usually money, but also prestige, power, attention, approval, and other values that are likely to be aggregated in social roles. So pervasive is the need for authoritative, narrowed and screened information that society evolves specialized roles to perform the function. In a highly complex and segmented society, there is a good deal of room for variation in the kinds and combinations of information "packages" that can be aggregated, providing a broad base of support for a great number of highly differentiated belief systems. Authority figures also perform the vital function of providing a human link between the organism and society. It is through authority figures that society attempts to transmit its moral requirements, and to enhance the operation, coordination and integration of social activity by exacting the compliance of the organism. It is natural, therefore, that the organism should link itself to society through authority, and that society should capitalize on the organism's inherent need for authority to facilitate performance of vital social activity.

One thing is certain: people need authority figures. Milton Rokeach, in his intensive two-year observation of three paranoid schizophrenics who had adopted the identity of Christ, found that even deluded people manufacture authority figures. Rokeach reports that

> these referents were either completely delusional or quasi-real. Clyde, for example, frequently hallucinated and spoke warmly of someone called Gloria, a lifelong chum he had grown up and gone to school with. Joseph told us from the very beginning that Dr. Yoder (the hospital superintendent) was his Dad. In the case of Leon, there was first his wife the Blessed Virgin Mary, and his uncle, George Bernard Brown, the reincarnation of the Archangel Michael. Later, of course, he transferred his affections to Mrs. R. I. Dung, or Madame Yeti Woman.[13]

The last Christ, Leon, changed his identity midway in therapy under the pressure of confrontation with two other people who had claimed his identity. What is most significant is that he also changed authority figures. And, although the fact escaped Rokeach's written analysis, each of the Christs had no more than two authority figures. Clyde and Joseph had one each, and Leon had two before his change, and one after. By sending messages alleged to have originated with the authority figures, Rokeach was able to induce the only significant behavioral changes ever to take place in the lives of any of the Christs since they had become mental patients. In Joseph's case, "placebos, prescribed . . . by his authority referent, had served to inhibit for approximately two or three months, not imaginary pains, but somatic ones,"[14] caused by a duodenal ulcer. The three Christs were responsive only to their authority figures, but this was limited only to behavioral change--no cognitive change occurred. We may infer that

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[13] Milton Rokeach, The Three Christs of Ypsilanti: A Narrative Study of Three Lost Men (New York: Alfred A. Knopf, 1964), p. 197.

1) the need for authority figures is so powerful that not even mental patients can live without them,

2) that people are more responsive to important and esteemed authority figures,

3) there exists in every cognitive system a number of authority figures arranged in a hierarchy of importance depending upon the organism's needs and interests,

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[14] *Ibid.*, p. 286.

4) as perceptual withdrawal (schizophrenia) increases, the less important authority figures are gradually eliminated,

5) the number of authority figures a person has is probably proportional to the differentiation and content levels of the belief system: the greater the differentiation and content, the larger the number of authority figures.

Finally, it should be noted that some people are more diffuse in their orientation to authority than others. To use a term coined by Linton and Graham, they are _field dependent_ perceptually.[15] Field dependence means that almost anyone who happens to enter the psychological field of the organism becomes an authority figure, and as such, has potential control over the individual's definition of the situation. When the new authority figure chooses, he may gain access to the individual's cognitive system, and may influence his perception of reality in a way that will permit later modifications of behavior. In short, the field dependent personality is susceptible to the cognitive manipulation of practically everyone.

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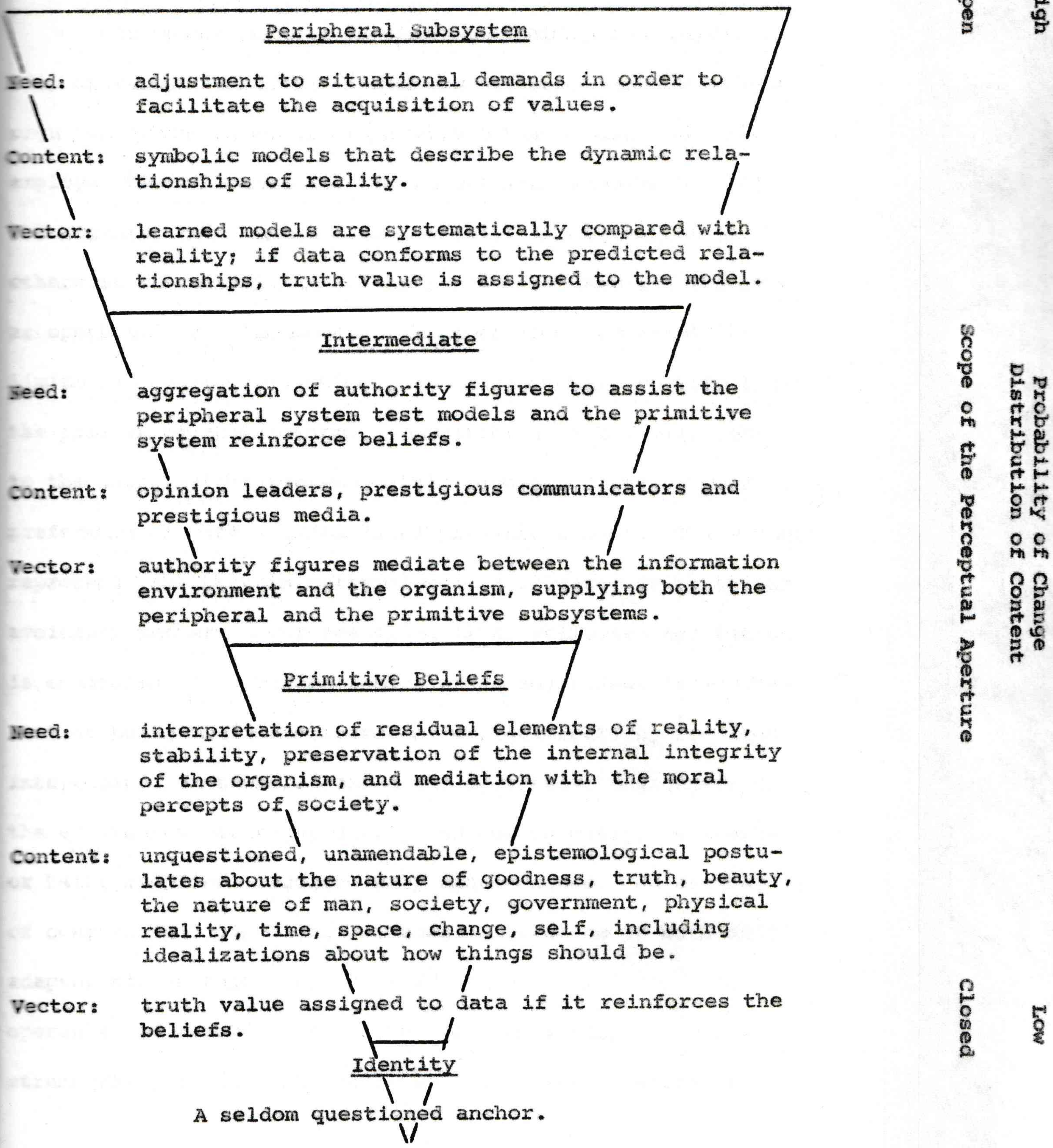
[15] Harriet Linton and Elaine Graham, "Personality Correlates of Persuasibility," _Personality and Persuasibility_, ed. Irving Janis and Carl Hovland (New Haven: Yale University Press, 1959), pp. 69-101.

In summary, the foregoing conception of cognitive structure has several advantages over previous formulations: first, it gives theoretical justification to the centrality of perception to human behavior. Second, it posits a structure based upon specialized perceptual functions, thus providing a means of differentiating types or kinds of beliefs. Third, it offers a theoretic interpretation of two seemingly contradictory kinds of evidence (contradictory enough to produce two distinct theoretical formulations--dissonance and psychoanalytic): (a) that people change their minds often, and in the direction of the situationally defined requirements, and (b) that in spite of such change, there still exists a remarkable continuity in belief patterns. Fourth, it gives meaning to several of the *ad hoc* constructs of communications research (selective exposure, perception and retention, opinion leaders).

The cognitive structure can be schematized as an inverted pyramid, inverted to illustrate the probability of change, the distribution of content and the scope of the perceptual aperture:

Figure 3.3



Peripheral Subsystem

Need: adjustment to situational demands in order to facilitate the acquisition of values.

Content: symbolic models that describe the dynamic relationships of reality.

Vector: learned models are systematically compared with reality; if data conforms to the predicted relationships, truth value is assigned to the model.

Intermediate

Need: aggregation of authority figures to assist the peripheral system test models and the primitive system reinforce beliefs.

Content: opinion leaders, prestigious communicators and prestigious media.

Vector: authority figures mediate between the information environment and the organism, supplying both the peripheral and the primitive subsystems.

Primitive Beliefs

Need: interpretation of residual elements of reality, stability, preservation of the internal integrity of the organism, and mediation with the moral percepts of society.

Content: unquestioned, unamendable, epistemological postulates about the nature of goodness, truth, beauty, the nature of man, society, government, physical reality, time, space, change, self, including idealizations about how things should be.

Vector: truth value assigned to data if it reinforces the beliefs.

Identity

A seldom questioned anchor.

Skill Trait Structure and Function

If needs can only be satiated through the acquisition of values, it follows that the ultimate success of the organism depends upon the existence of means that can be employed to get access to, and to actually acquire, values. The organism must have skills, or skill traits, which may otherwise be referred to in the context of learning theory as operants and respondents. In general, an organism is limited to one of two broad orientations toward reality and the problem of acquisition: adaptation of the environment to the personal preferences of the organism or adjustment of preferences to the conditions of the environment. The former represents an approach pattern while the latter indicates an avoidance pattern. Our reasoning is as follows: adaptation is equivalent to modification, whereas adjustment is equivalent to being modified; approach, or modification, requires interaction, or a wholehearted and aggressive engagement of the environment both physically and perceptually; avoidance, or being modified, requires only acquiescence. We assume, of course, that the highly successful organism is both an adaptor and an adjustor, and that he makes decisions about operants and respondents on the basis of a completely instrumental plan of value acquisition. However, where we find one pattern dominating the other, or one pattern totally absent, there emerges a totally different personality disposition. Precisely where and when each operant-respondent skill pattern develops is uncertain, although we may hypothesize that they originate within the matrix of the early family socialization experience, and represent characteristic modes of acquisition that have evolved in response to a particular syndrome of problems. The more often the problems occur, and occur in the same way, and the more often that they are satisfactorily resolved by particular operants or respondents, the higher the probability that those operants and respondents will become enduring elements of the organism's skill trait repertoire. McClelland puts the matter more succinctly: a trait is

> *the learned tendency of an individual to react as he has reacted more or less successfully in the past in similar situations when similarly motivated*. To put this in slightly different way, we can say that when a man is faced with what he perceives to be the same situation with the same variety and intensity of motivation, he tends to utilize the type of response that satisfied the demands of the situation and the motivation in the past.[16] (Italics in original.)

Whether or not skill traits fall into a particular empirical structure is a question for research. However, in logical terms, every person should have a set of traits divided between those which facilitate the management of interaction and those which facilitate the management of information. By employing the approach-avoidance dichotomy just advanced, the following classification can be derived:

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[16] McClelland, *Personality*, p. 216.

Figure 3.4

		Interaction	
		Approach	Avoidance
Perception	Approach	selector	submissive
	Avoidance	renderer	withdrawer

The ideal relationship between approach-avoidance vectors, at least in terms of value acquisition theory, is the perceptual-interaction approach vector, or that of the selector. In general, the selector's activity has the highest probability of being successful: (a) his major orientation is toward the aggressive alteration of the environment, and for that reason, he is likely to go further faster, with the result that he will probably have more opportunities for interaction; (b) his activity is always based on the most intensive and efficient mobilization of resources possible, which means that, of the four types, he is the most likely to realize a profit from exchange; (c) because he is open perceptually, his behavior is always based upon relatively accurate knowledge of reality. In contrast, the renderer has approximately the same interaction drive, but has far less success, primarily because his avoidance of reality perceptually means that his interaction must be based on erroneous models of reality. Thus, he is far more prone to errant behavior than the selector. Where the selector's activity is highly discriminate and controlled, the renderer generalizes hastily from one setting to another. Of course, most settings differ, and each normally calls for different forms of "appropriate" behavior. The renderer normally fails to detect the subtle differences (or changes) in situational demands, selectively interprets or distorts information to conform to prearranged and unalterable categories, and responds in roughly the same way to different stimuli. Because he cannot discover subtle differences, he is forced to rely on a small number of skills in all situations. He is apt to be, as a consequence, more orthodox in his behavior and his perception than the selector--and the source of his orthodoxy will be the past. The submissive, in contrast to both the renderer and the selector, avoids interaction, but has an open mind responsive to reality. This suggests an imbalance in the need system with a heavy bias toward vicarious interests in knowledge which will not be used for any practical purpose. His behavior is likely to be relatively more successful than that of the renderer, if only because his perception is better. His perspective is one of being modified and liking it. Finally, the least desirable (in terms of value acquisition theory) emerges in the withdrawer, with his avoidance of both reality and interaction; apparently the withdrawer has no use for other people at all, and therefore has little need for knowledge of reality. He is probably a relatively self-sufficient individual, or if not self-sufficient, tending toward emotional schizophrenia. A note of caution should be added here about the interpretation of the categories. Avoidance of interaction does not mean that the individual does not interact, but merely that he circumscribes his relationships, limiting them to particular patterns. For example, the withdrawer may interact, but only within the limits prescribed by the roles he plays, avoiding altogether the informal opportunities for interaction.

How does one find selectors, renderers, submissives and withdrawers empirically? By the identification of traits which either facilitate or retard the interaction and